Question 3: Portfolio construction and comparison

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Abstract

The purpose of this question is to construct a portfolio analysis on the weighted ALSI and weighted SWIX portfolios. In this question I will plot the cumulative returns of both portfolios and evaluate the comparisons and differences. Furthermore, a breakdown of the various weighted contributions of each sector within each weighted portfolio will be analysed.

1. Introduction

Using the information on the ALSI (J203) and SWIX (J403) Indexes, I will be writing a short report where I will be comparing the specific methodologies used by the ALSI and the SWIX, evaluating the cumulative returns of each and plotting them together to perform a comparison, evaluating which sectors hold the highest weight and contribution for each.

2. Loading relevant data and packages

The data used is data based on the ALSI and SWIX. The data contains dates, weights and returns for each.

3. Lets create an ALSI and SWIX weighted poerfolio cumulative returns

3.1. First lets calculate each indexes weighted daily portfolio returns using the safe_returns:

In order to use the safe_returns function to calculate the weighted portfolio returns I need to convert the data to and xts format. That is done below:

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Now that we have the merged data frame of portfolio returns for the ALSI and SWIX in the correct format, I can move onto calculating the cumulative weighted returns.

3.2. Cumulative returns plot

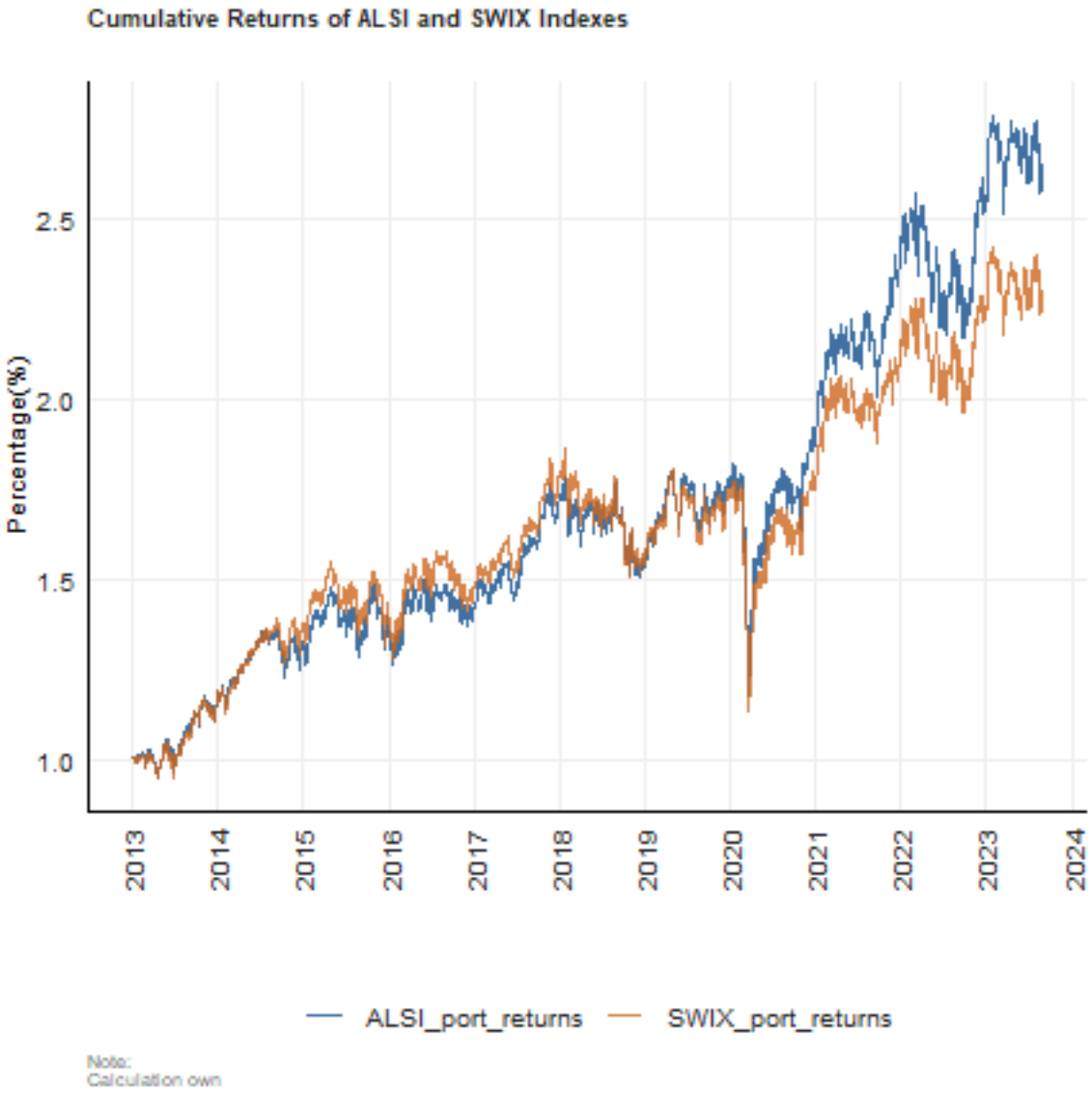

Figure 3.1: Cumulative returns plot

As can be seen from the above graph, the cumulative returns for the ALSI and the SWIX were very similar until 2020, at which point the ALSI began outperforming the SWIX. Immediate prior to this separation in cumulative returns was a huge draw down for both the ALSI and SWIX weighted portfolios. Since this draw down is within 2020, a possible reason could be the COVID-19 pandemic.

There may have been a switch in weights between the two portfolios which would result in varying returns. From the graph it is evident that the ALSI reacted better than the SWIX to this heavy draw down in 2020.

To further this analysis I will dive into the weighted construction of the ALSI and SWIX portfolios, more precisely, I will be analyzing the weighted return contribution for each sector and evaluating the differences in the ALSI and SWIX.

3.3. Each sectors weighted return contribution

In this section of code I am grouping by sector to then be able to calculate the weighted reuturn contribution of each sector in the respective ALSI and SWIX portfolios. I can then evaluate which sectors are the main drivers to portfolio returns.

3.4. The ALSI's individual sectors weighted return contribution

Here we are able to evaluate which sector(s) are the main weighted return drivers of the ALSI weighted portfolio. From the plot below it is evident that for the last 10 years the majority of the return in the ALSI weighted portfolio has come from the Industrial sector and the lowest coming from the property/residual sectors. However, since 2016 the industrial sector has slowly started lossing its majority hold to an ever rising contribution from the resources sector.

Next we are going to evaluate the same plot but for the SWIX weighted portfolio. We will then be able to do identify a possibility of why the cumulative returns of the two portfolios differ.

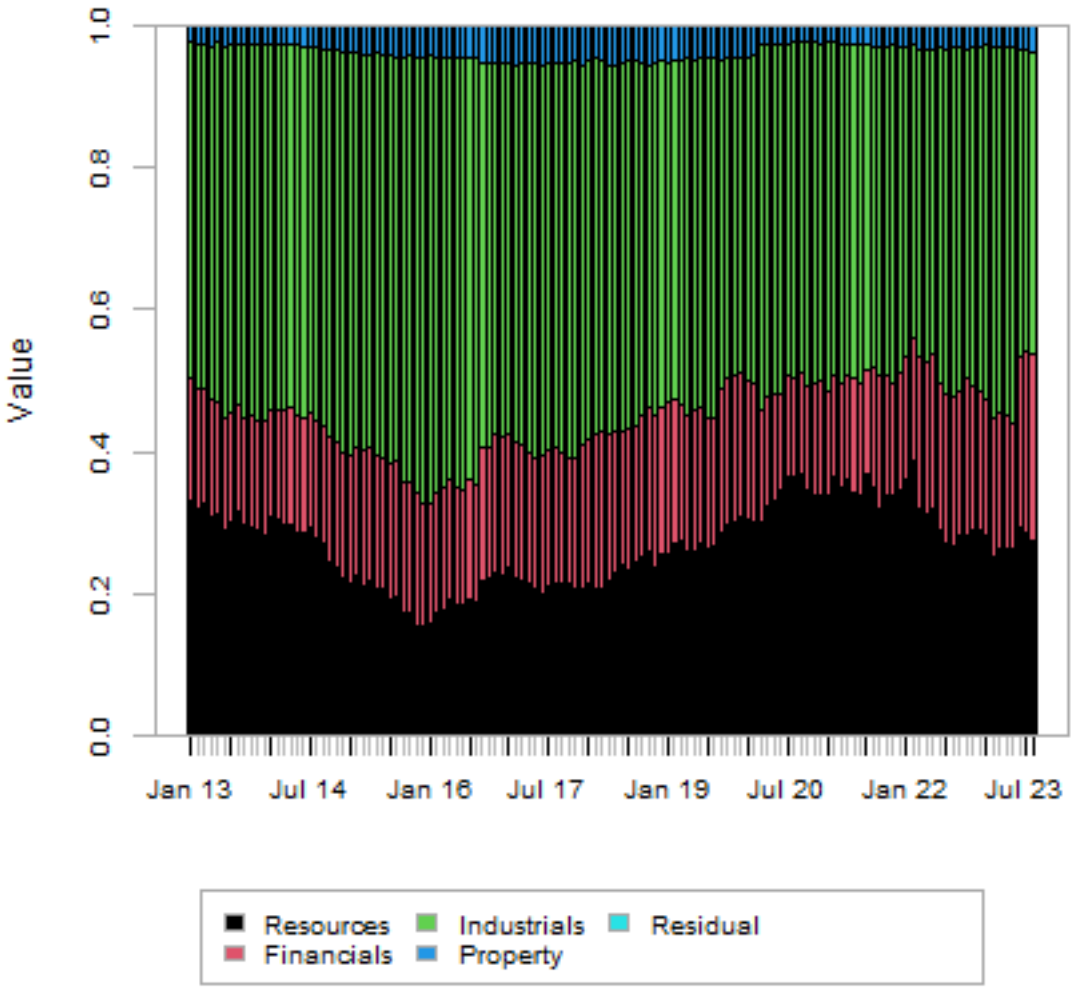

Figure 3.2: ALSI sector contribution plot

3.5. The SWIX's individual sectors weighted return contribution

The plot below evaluates which sector(s) are the main weighted return drivers of the SWIX weighted portfolio. Like that of the ALSI, the majority holding is found in the industrial sector with again the minority held by the the property/residual sectors. The trajectory of increased contribution from the resources sector is scene here again as was seen in the ALSI portfolio. However, the differences lie in the actual value. It is evident that the SWIX weighted portfolio has a more even contribution between the financial sector and resources sector. Where the ALSI has a higher contribution from the resources sector over the financial sector.

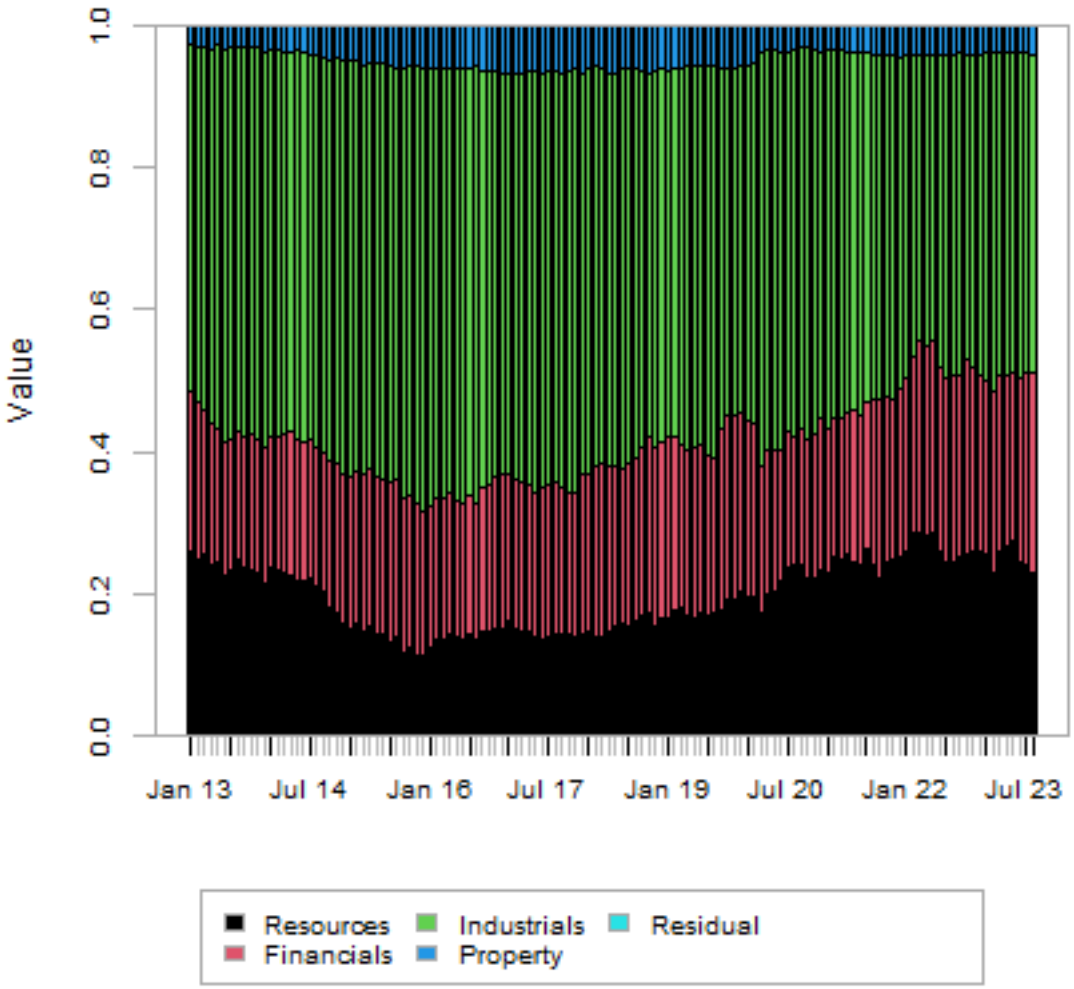

Figure 3.3: SWIX sector contribution plot

3.6. Comparisson of the ALSI and SWIX portfolio contribution

When evaluating the weighted contributions of the various sectors to the ALSI and SWIX portfolios, there are some similarities but also some points of difference. Both portfolios have a large contribution from the industrial sector. Where the differences play a part is with respect to the financial a resources sectors. The ALSI obtains more weight from the resource sectors over that of the financial sector, while the SWIX obtains more of an even split between the two. This difference may be the contributing factor as to why the ALSI performed better than the SWIX since 2020.

References

Appendix

Appendix A

Some appendix information here

Appendix B